The effect of Kilka protein hydrolysate (*Clupeonella cultriventris*) and *Lactobacillus plantarum* on intestinal microflora of trout (*Oncorhynchus mykiss)* and it,s resistance to Yersiniosis

Reza Safari[1]*, Abdollah Jafari[2], Zahra Yaghoubzadeh[3], Ali Akbar Arabahmadi[4]

1,2,3,4-Caspian Sea Ecology Research Center (CSERC), Iranian Fisheries Science Research Institute (IFSRI), Agricultural Research, Education and Extension Organization (AREEO), Sari, Iran

Corresponding author e mail: safari1351@gmail.com

Abstract

Increasing bacterial resistance to commercial antibiotics in aquaculture, the need for new alternatives such as microbial supplements and modified diets have been important. In this study, the effect of dietary foods containing probiotic *Lactobacillus plantarum* alone and along with 10 and 20% Kilka protein hydrolysate were evaluated on intestinal microflora of trout (*Oncorhynchus mykiss*) and it,s resistance to Yersiniosis. For this purpose, for count of total viable count (TVC) and lactic acid bacteria (LAB) were used Plate Count agar (PCA) and De Man Rosa & Sharp agar (MRS) respectively. Survival rate in challenging with *Y. ruckeri* was also determined. Results showed that *O. mykiss* fed on diet supplemented with *Lactobacillus plantarum* + Kilka protein hydrolysate 10% had significantly better than compared to other treatments ($P < 0.05$) and enumeration of TVC and LAB and survival rate of samples in recent treatment were 3.85×10^7, 7.75×10^5 CFU/g and 77.2% respectively. According to the observed results, it is recommended to use probiotic and fish protein hydrolysate in the diet to increase the resistance of trout against common diseases in aquaculture.

Keywords: *Oncorhynchus mykiss*, Kilka protein hydrolysate, *Lactobacillus plantarum*, Yersiniosis, microbial flora.